



SOUTHWESTERN
INSTITUTE OF FORENSIC SCIENCES
AT DALLAS

Office of the Medical Examiner
Autopsy Report



COPY
DALLAS COUNTY
INSTITUTE OF FORENSIC SCIENCES

Case: IFS-11-10161 - ME

172 1640

Decedent: McCollum, Larry Gene 58 years White Male DOB: 04/04/1953

Date of Death: 07/28/2011 (Actual)

Time of Death: 11:35 PM (Actual)

Examination Performed: 07/29/2011 09:30 AM

ORGAN WEIGHTS:

Brain: 1,600 g	Right Lung 700 g	Right Kidney: 260 g
Heart: 550 g	Left Lung: 500 g	Left Kidney: 280 g
Liver: 2,590 g	Spleen: 250 g	

EXTERNAL EXAMINATION

The body is identified by tags. Photographs and fingerprints are taken.

The body is received nude. No personal effects or jewelry are present on the body.

The body is that of a normally-developed white male which appears consistent with the recorded age of 58 years. When nude, it measures 70 inches in length and weighs 345 pounds. There is good preservation in the absence of embalming. Rigor mortis is present. Lividity is located on the posterior body surfaces and blanches with pressure. The body is room temperature in the presence of minimal refrigeration.

The hairline is receding and there is short gray hair that is cut very close to the scalp. Mustache and beard stubble are on the face. The irides are brown and there are no petechiae of the bulbar or palpebral surface of the conjunctivae. The ears, nose, and lips are unremarkable. The mouth has natural dentition. The neck is without masses or unusual mobility. The chest and back are unremarkable. The abdomen is protuberant. The extremities are symmetric. The external genitalia, perineum, and anus are unremarkable.

A 1 inch area of indentation and red discoloration is on the right side of the forehead.

IDENTIFYING MARKS AND SCARS

A 3 inch linear scar is obliquely oriented on the right side of the abdomen.

A 2 inch linear scar is on the right temporal scalp.

EVIDENCE OF TREATMENT



Accredited by The National Association of Medical Examiners

2011-07-29

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McCollum, Larry Gene



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- Cardiac monitor pads affixed to the chest
- Intravascular catheter in upper right arm
- Hospital band encircling left wrist
- Foley catheter
- Rectal catheter connected to plastic bag containing fecal material
- Needle puncture surrounded by ecchymosis in the left inguinal region
- Needle punctures in the right inguinal region, with extravasated blood within the soft tissue and musculature surrounding the right inguinal canal

EVIDENCE OF INJURY

A 1/4 inch purple contusion is on the superior aspect of the bridge of the nose.

Reflection of the scalp reveals a 3 cm area of hemorrhage in the left temporalis muscle along the parietal bone. A 1 inch purple contusion with central abrasion is immediately inferior to the left external ear. Deep to this is a 4 cm area of hemorrhage within the underlying soft tissue.

A 2 cm purple contusion is on the left supraclavicular region. A 2 inch purple to yellow contusion is on the right upper abdomen near the subcostal margin. A few purple contusions measuring between 1 and 2 cm each are on the left side of the chest. A 1/2 inch red abrasion is on the front of the proximal left forearm. A 2 inch purple contusion is on the posterior aspect of the left thigh.

INTERNAL EXAMINATION

BODY CAVITIES: Approximately 300 cc of tan clear fluid are within each pleural cavity. The pericardial and peritoneal cavities contain no adhesions or abnormal collections of blood or other fluid.

HEAD: See EVIDENCE OF INJURY. The dura and dural sinuses are unremarkable. There are no epidural, subdural or subarachnoid hemorrhages. The leptomeninges are thin and delicate. The cerebral hemispheres are symmetrical, with flattened gyri and effaced sulci. There is mild notching of the parahippocampal gyri. The cerebellar tonsils are soft; sections reveal friable, tan-red necrotic parenchyma. The cranial nerves and blood vessels are unremarkable. Sections through the brainstem are unremarkable. Sections through the cerebral hemispheres exhibit diffuse blurring of the gray-white matter junctions. There are no hemorrhages in the deep white matter or the basal ganglia. The cerebral ventricles contain no blood. The spinal cord, as viewed from the cranial cavity, is unremarkable.

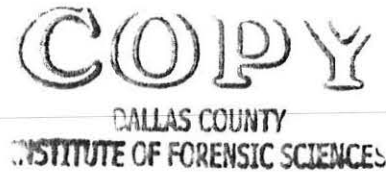
NECK: The soft tissues and prevertebral fascia are unremarkable. The hyoid bone and laryngeal cartilages are intact. The lumen of the larynx is not obstructed.

CARDIOVASCULAR SYSTEM: The intimal surface of the abdominal aorta is free of significant atherosclerosis. The aorta and its major branches and the great veins are normally distributed and unremarkable. The pulmonary arteries contain no thromboemboli. The heart is markedly enlarged, with normal contours. The pericardium, epicardium, and endocardium are smooth, glistening, and unremarkable. There are no thrombi in the atria or ventricles. The foramen ovale is closed. The coronary arterial system is free of significant atherosclerosis. The atrial and ventricular septa are intact. The cardiac valves are unremarkable. The myocardium is dark red-brown and firm, and there are no focal



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abnormalities.

RESPIRATORY SYSTEM: The upper airway is unobstructed. The laryngeal mucosa is smooth and unremarkable, without petechiae. The pleural surfaces are smooth and glistening. The major bronchi are unremarkable. Sectioning of the lungs discloses a dark red-blue, moderately congested parenchyma.

HEPATOBIILIARY SYSTEM: The liver is covered by a smooth, glistening capsule. The parenchyma is dark red-brown and moderately congested. The gallbladder contains approximately 10 cc of dark green bile, and one dark green cholesterol stone measuring approximately 2 inches in greatest dimension.

GASTROINTESTINAL SYSTEM: The tongue is grossly normal both externally and upon sectioning. The esophageal mucosa is gray, smooth, and unremarkable. The stomach is empty. There are no tablets or capsules. The gastric mucosa has normal rugal folds, and there are no ulcers. The small and large intestines are externally unremarkable. The appendix is absent. The pancreas is unremarkable externally and upon sectioning.

GENITOURINARY SYSTEM: The capsules of both kidneys strip with ease to reveal smooth and slightly lobulated surfaces. The cortices are of normal thickness, with well-demarcated corticomedullary junctions. The calyces, pelves, and ureters are unremarkable. The urinary bladder is empty. The mucosa is gray, smooth, and unremarkable. The prostate gland is unremarkable both externally and upon sectioning.

ENDOCRINE SYSTEM: The thyroid and adrenal glands are unremarkable externally and upon sectioning.

LYMPHORETICULAR SYSTEM: The spleen is covered by a smooth, blue-gray, intact capsule. The parenchyma is dark red. The cervical, hilar, and peritoneal lymph nodes are unremarkable.

MUSCULOSKELETAL SYSTEM: The clavicles, ribs, sternum, pelvis, and vertebral column have no fractures. The diaphragm is intact.

MICROSCOPIC EXAMINATION:

Heart: myocyte hypertrophy; increased interstitial and perivascular fibrosis.

Lung: vascular congestion.

Liver: moderate macrovesicular steatosis, mild focal centrilobular necrosis.

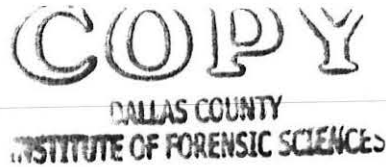
Kidney: No significant pathologic alteration is identified.

Spleen: diffuse hypocellularity with depletion of both the red and white pulp.



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TOXICOLOGY:

Evidence Submitted:

The following items were received by the Laboratory from the Office of the Medical Examiner:

- 004: Biohazard Bag
- 004-001: Blood, femoral - gray top tube
- 004-002: Blood, femoral - gray top tube
- 004-003: Blood, femoral - gray top tube
- 004-004: Blood, femoral - gray top tube
- 004-005: Blood, femoral - red top tube
- 004-006: Vitreous - red top tube
- 004-007: Skeletal muscle - plastic tube

Blood, postmortem

Acid/Neutral Screen (GC/MS)
negative (004-001)

Alcohols/Acetone (GC)
negative (004-002)

Alkaline Quantitation (GC, GC/MS)
negative (004-001)

Opiate Narcotics (GC/MS)
0.107 mg/L morphine (004-002)

Vitreous

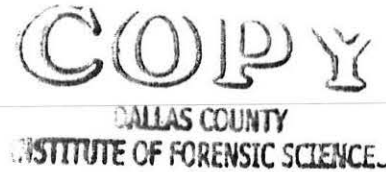
Alcohols/Acetone (GC)
negative (004-006)

Opiate Narcotics (GC/MS)
0.046 mg/L morphine (004-006)



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FINDINGS:

1. Hyperthermia

- a. History that the decedent was in a hot environment without air conditioning, and was witnessed to collapse with seizure activity.
- b. History that the decedent presented to the Emergency Department unresponsive, with a body temperature of 109.4 degrees Fahrenheit.
- c. Hospital course complicated by
 1. hypoxic-ischemic encephalopathy
 2. disseminated intravascular coagulation
 3. shock
 4. multi-system organ failure
- d. Brain swelling
 1. transtentorial herniation
 2. cerebellar tonsillar herniation and acute necrosis
 3. hypoxic-ischemic encephalopathy

2. History of hypertension

- a. Cardiac hypertrophy (heart weight = 550 grams)
- b. History of treatment with hydrochlorthiazide

3. Morbid obesity (Body mass index = 49.5)

4. Contusions of scalp and face

5. Subgaleal hemorrhage

6. No significant injuries

CONCLUSIONS:

Based on the autopsy and the history available to me, it is my opinion that Larry Gene McCollum, a 58-year-old white male, died as the result of hyperthermia. The decedent was in a hot environment without air conditioning, and he may have been further predisposed to developing hyperthermia due to morbid obesity and treatment with a diuretic (hydrochlorthiazide) for hypertension.

MANNER OF DEATH: Accident



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McCollum, Larry Gene

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10/26/2011

Keith Pinekard, M.D., Ph.D.

Medical Examiner



Patient Account: 20005972-517
 Med. Rec. No.: (0150)185744Q
 Patient Name: Meyers, Thomas
 Age: 47 YRS DOB: 12/26/64 Sex: M Race: C
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/04/11 1105
 Copies to:

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 University of Texas Medical Branch
 Galveston, Texas 77555-0543
 (409) 772-1238
 Fax (409) 772-5683
Pathology Report

680515
FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00160

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNKNOWN Residence: TEXAS
 Date/Time of Death: 8/3/2011 12:10 Date/Time of Autopsy: 8/4/2011
 Pathologist/Resident: RAMPY/KOSHY Service: TDC CONTRACT
 Restriction: NONE

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

FINAL AUTOPSY DIAGNOSIS

- | | |
|---|----|
| I. Body as a whole: clinical history of hyperthermia (105.6 degrees Fahrenheit) due to high environmental temperature | C1 |
| A. Organs in situ: Marked, generalized autolysis | A4 |
| B. Lungs: Pulmonary edema and intra-alveolar hemorrhage, patchy | A3 |
| C. Heart: Cardiomegaly (410 g) | A4 |
| 1. Heart: Contraction band necrosis, focal areas | A4 |
| D. Brain: Edema | A4 |
| II. Body as a whole: Clinical history of hypothyroidism | |
| A. Thyroid: Hashimoto thyroiditis | A3 |
| III. Other findings: | |
| A. Spleen: Congestive splenomegaly (270 g) | A5 |
| B. Liver: Hepatomegaly (2020 g) | A5 |
| C. Liver: Marked macro- and microvesicular steatosis | A5 |
| D. Prostate: Chronic prostatitis, multifocal | A5 |
| E. Pituitary gland: Microadenoma | A5 |

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

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 Patient Location: AUTOPSY
 Room/Bed: -
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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00160

CLINICAL SUMMARY:

The decedent was a 46-year-old male TDCJ inmate, with a past medical history of hypertension, hyperlipidemia, hypothyroidism and schizophrenia who was found unresponsive in his cell on 08/03/2011. His cell mate reported that the deceased was rocking while standing and sitting before he became unresponsive. He then was transported to the infirmary where a body temperature was measured at 105.6 degrees Fahrenheit. Ice packs and wet towels were placed on the patient to lower his body temperature. The prison doctor ordered the patient to be transferred to the hospital and en route, the the decedent developed cardiac arrest. Cardiopulmonary resuscitation was initiated, yet no pulse was regained. The patient died on 08/03/2011. A complete autopsy was performed on 08/04/2011.

JTK/da
08/08/11

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Autopsy No.: AU-11-00160

GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by a left ankle identification band as "Thomas Meyers", is a well-developed, well-nourished white male, measuring 188 cm in body length and weighing approximately 225 lbs according to recent medical records. The general appearance is consistent with the reported age of 46 years. Rigor mortis is present in the arms and legs bilaterally and there is fixed lividity with numerous Tardieu spots on the posterior surfaces. The head is normocephalic with short (2.5 cm) dark brown/black hair.

The irides are brown with equal pupils measuring 0.3 cm in diameter. The corneas are clouded, the conjunctivae are minimally congested and the sclerae are white. The nares are patent with scant thin, watery blood-tinged exudate bilaterally. Dentition is adequate. The buccal membranes are pale. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is normal male. The chest diameters are normally proportioned. The abdomen is protuberant. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable.

The back is unremarkable. The left arm is remarkable for numerous patches of petechiae and purpuric hemorrhage distributed primarily along the proximal anterior surfaces. One such prominent patch is at the left antecubital fossa and likely reflects an intravenous access site. Otherwise, the extremities appear unremarkable. The genitalia are normal circumcised male for the age.

The following evidence of medical intervention is present: An endotracheal tube is in place, secured with with a blue plastic collar. A defibrillator pad is positioned at the right rostral chest just caudal to the clavicle. Another defibrillator pad is positioned at the lateral aspect of left lower quadrant of the abdomen. A blood pressure cuff is positioned at the mid-shaft of the left arm. Eleven EKG leads are positioned along the rostral aspect of the proximal arms and shoulders bilaterally as well as along the lateral aspect of the left thorax, abdomen and hip. A single lumen IV line is positioned at the left lateral neck.

The following marks, scars and tatoos are present: An 8 cm linear, longitudinal scar is positioned approximately mid-shaft, along the anterior aspect of the of the right thigh. A 3 cm oblique, linear scar is positioned approximately 5 cm caudal to the right tibial tubercle. A tattoo of the text "Thomas" is positioned approximately 8 cm rostral to the right nipple.

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 4 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. The right and left pleural cavities each contain

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GROSS DESCRIPTION:

20 ml of clear red fluid.

The pericardial sac contains no fluid. Ribs 1,2,5 and 6 on the right and 1, 3,5 and 6 on the left are fractured anteriorly (most likely associated with cardiopulmonary resuscitation).

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries.

The abdominal cavity contains 20 ml of clear red fluid. There are no peritoneal adhesions.

CARDIOVASCULAR SYSTEM: Heart: The heart weighs 410 gm (normal male 270-360) and is notably soft. The rostral, anterior aspect of the pericardium exhibits superficial blood and blood clot (approximately 12 x 8 cm), consistent with the distribution of the previously described anterior rib fractures. Approximately 80% of the heart is covered with epicardial fat. The heart is examined by transverse serial slicing of the ventricles, then opening following the flow of blood. The myocardium is homogeneous red-brown. The endocardium is translucent and smooth. The left ventricular wall is 1.6 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle and free wall, and the right ventricle is 0.3 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps are white, delicate and membranous.

Valve circumferences measured on the fresh heart are: tricuspid valve 11 cm (normal 12-13 cm), pulmonic valve 6 cm (normal 8.5-9.0 cm), mitral valve 11.5 cm (normal 10.5-11.0 cm), and aortic valve 8.3 cm (normal 7.7-8.0 cm). The foramen ovale is closed.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left anterior descending artery. The coronary arteries reveal no significant atherosclerosis. The aorta exhibits approximately 10% surface area involved with ulceration and complicated plaques positioned primarily caudal to the level of the renal arteries. The celiac, superior and inferior mesenteric, renal and iliac arteries are normal. The superior and inferior venae cavae and their branches are normal. The portal vein is normal.

RESPIRATORY SYSTEM: Larynx and trachea: The laryngeal mucosa is pink/red and smooth with no lesions and the vocal cords appear normal. The tracheal mucosa is moderately congested, tan/pink and otherwise unremarkable.

Lungs: The right lung weighs 710 gm (normal male 435), and the left 830 gm (normal male 385). The pleural surfaces are smooth, pink and essentially

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GROSS DESCRIPTION:

translucent throughout. The left lung is inflated with formalin before sectioning. The bronchial and vascular trees are normal. The hilar nodes are unremarkable. The lung parenchyma is red/purple, with fine porosity and oozes thin fluid with sectioning.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is tan/pink and unremarkable.

Tongue: The tongue has a finely granular surface with no coatings.

Stomach and duodenum: The stomach contains 30 ml of dark brown, viscous chyme. The wall displays attenuated rugae and the mucosa is tan without lesions. The duodenum has a tan, glistening mucosa with normal plical pattern without lesions.

Pancreas: The pancreas has a normal conformation of head and tail. The parenchyma is tan, normally lobulated and soft. The pancreatic duct is patent. The pancreas cuts without a gritty sensation.

Biliary tract: The gallbladder serosa is gray/green and glistening. The gallbladder contains 30 ml of mildly viscous black bile. with no calculi. The mucosa is pink/red and velvety. The cystic duct, hepatic duct, and common duct are normal and bile is expressed freely from the ampulla on compression of the gallbladder.

Liver: The liver weighs 2020 gm (normal male 1400-1900). The liver surface is smooth and glistening. Glisson's capsule is essentially translucent. The liver is serially sliced to reveal a homogeneous lobular pattern with dark red/brown parenchyma and no gross lesions.

Small Bowel: The serosa is smooth and semi-translucent with no adhesions. The bowel is normal caliber throughout and the lumen contains semiliquid tan material. The mucosa is tan and glistening with normal plications. The bowel wall reveals no lesions.

Large bowel: The serosa is smooth, tan and glistening with no adhesions. The mucosa is tan and glistening throughout with no gross lesions. The lumen contains soft, tan/brown fecal material. The appendix is grossly normal.

Rectum and anus: No lesions are noted and no abnormalities of the anal opening are present.

Reticulo-Endothelial System: Spleen: The spleen weighs 270 gm (normal 125-195 gm). It is semi-firm throughout and exhibits granular dark red parenchymal cut surfaces.

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GROSS DESCRIPTION:

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are unremarkable.

Spine: The spine is normal.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal. The trabeculae and cortical bone are of normal density.

GENITO-URINARY SYSTEM: Kidneys: The kidneys are symmetric. The right kidney weighs 180 gm and the left 170 gm (normal male 125-170 gm). The capsules strip with ease to reveal essentially smooth, red cortical surfaces. Serial slicing reveals well-demarcated cortico-medullary junctions. The right and left cortices are 0.7 and 1.1 cm thick respectively. The pelves and calyces are normal. The renal pelvic mucosa is normal. Perihilar adipose tissue is increased.

Ureters: The ureters are of normal caliber (0.3 maximal external diameter) throughout their length with tan smooth glistening mucosa. No periureteral fibrosis is noted. The distal ureters are probe-patent into the bladder.

Bladder: The bladder is minimally thickened with mild trabeculation. The mucosa is white/tan and the trigone is normal.

Prostate: The prostate is normal in size, color, consistency, and texture. Serial slicing reveals normal granular surfaces without distinct architecture. The seminal vesicles are normal.

Testes: The right testis weighs 26.7 gm, and the left 22.4 gm (normal 20-25 gm). The tunica albugineas are white/tan, smooth and glistening. The cut surfaces reveal tan/yellow, soft parenchyma with tubules which string with ease.

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 22.3 gm (normal 10-22 gm), is red/brown, bosselated and glistening. Cut surfaces reveal homogeneous, red/brown semi-translucent, parenchyma throughout.

Parathyroids: Parathyroids were not identified.

Adrenal glands: The right adrenal gland weighs 7.7 gm and the left 7.8 gm (normal 5-6 gm). The adrenal glands have a normal conformation and position. Serial slicing in the transverse plane reveals markedly soft golden cortices with grey medullae.

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1857440

Patient Name: Meyers, Thomas

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Attending Dr.: OUTSIDE TDCJ

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GROSS DESCRIPTION:

are normal. The brain weighs 1650 gm (normal male 1200-1400). The gyri and sulci display a normal pattern with minimal apparent cerebral edema. The leptomeninges are unremarkable. The circle of Willis, basilar and vertebral arteries show minimal atherosclerosis. No indentation/herniation of the cingulate gyri, unci or molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

Samples of liver, kidney, heart, lung, and spleen, were frozen for potential further examination.

JTK/da
08/09/11

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MICROSCOPIC DESCRIPTION:

PANCREAS, Slide 1 (1 H&E): Autolysis with postmortem bacterial overgrowth. Otherwise no pathologic change

ADRENAL GLAND, Slide 2 (1 H&E): Autolysis.

THYROID, Slide 3 (1 H&E): Lymphocytic infiltration of the stroma with multifocal oxyphilic change of follicular epithelium. The lymphoid tissue is distributed within and around lobules with occasional large follicles. Plasma cells, histiocytes and rare intrafollicular multinucleated giant cells are observed.

TESTIS, Slide 4 (1 H&E): Mild attenuation of spermatogenesis, appropriate for age. No pathologic change

VERTEBRA, Slide 5 (1 H&E): Normal myeloid/erythroid ratio with 60% cellularity and no pathologic change.

LIVER, Slide 6 (1 H&E): Autolysis. Marked, diffuse, mixed micro- and macrovesicular steatosis with rare, thin-walled, cyst-like cavities of uncertain significance. Postmortem bacterial overgrowth.

SPLEEN, Slide 7 (1 H&E): Autolysis. No pathologic change.

LUNGS, Slides 8 and 9 (2 H&E): Marked autolysis. Congestion with patchy, widely distributed areas of edema and intra-alveolar hemorrhage within sections of left lung. Postmortem bacterial overgrowth.

HEART, SLIDES 10 through 14 (5 H&E): Autolysis. Rare contraction band necrosis observed in widely scattered individual myocytes within the left ventricle and septum. Postmortem bacterial overgrowth.

KIDNEYS, Slides 15 and 16 (2 H&E): Autolysis. No pathologic change.

ILEUM, Slide 17 (1 H&E): Autolysis.

JEJUNUM, Slide 18 (1 H&E): Autolysis. No pathologic change.

COLON, Slide 19 (1 H&E): Autolysis. No pathologic change.

ESOPHAGUS, Slide 20 (1 H&E): Fibromembranous and muscular tissue fragment; no mucosa identified.

PROSTATE, Slides 21 through 23 (3 H&E): Multi-focal sites of lymphoplasmacytic inflammatory infiltrates are observed within the stroma and surrounding

Patient Name: Meyers, Thomas
Patient Location: AUTOPSY
Room/Bed: -
Printed Date / Time: 03/14/12 - 1359

Continued....

Patient Account: 20005972-517

Med. Rec. No.: (0150)185744Q

Patient Name: Meyers, Thomas

Age: 47 YRS DOB: 12/26/64 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/04/11 1105

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Fax (409) 772-5683

Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00160

MICROSCOPIC DESCRIPTION:

adjacent glands.

JTK/da

09/19/11

Patient Name: Meyers, Thomas

Patient Location: AUTOPSY

Room/Bed: -

Printed Date / Time: 03/14/12 - 1359

Continued....

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ARCHIVES

PAGE 03/03

Patient Account: 20005972-517

Med. Rec. No.: (0150)1857440

Patient Name: Meyers, Thomas

Age: 47 YRS DOB: 12/26/64 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/04/11 1105

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00160

CLINICOPATHOLOGIC CORRELATION:

The patient was a 46-year-old TDCJ male inmate, with a past medical history of hypertension, hyperlipidemia, hypothyroidism and schizophrenia who was found unresponsive in his cell on 08/03/2011. Body temperature (axillary) measured during acute medical response was 105.6 degrees Fahrenheit. No information obtained as part of the medical record or TDCJ Investigator Report indicates ambient temperature of the Coffield Unit for the evening of 08/03/2011, yet, historical data (derived from AccuWeather.com) indicates that the high temperature for Tennessee Colony, TX on this date was 108 degrees Fahrenheit. Clinical suspicion of heat-related mortality was also suggested in the TDCJ Investigator's Report.

Thorough external examination, in-situ examination of organs and microscopy effectively rule out trauma with regard to this patient. The primary gross and microscopic finding at autopsy is profound autolysis of the tissues for most organs examined. Such advanced tissue degradation for a routine autopsy is consistent with and is most certainly derived from, at least in part, an elevated body temperature at the time of death. Whereas marked autolysis does indeed limit the derivation of many fine details associated with histopathologic interpretation, most important considered diagnoses such as significant atherosclerotic coronary artery disease, frank myocardial infarction, pneumonia or other acute infections are effectively ruled out.

As suggested by the National Association of Medical Examiners: Position Paper: Criteria for the Diagnosis of Heat-Related Deaths (1996), for instances where the measured antemortem body temperature at the time of collapse was \geq 105 degrees Fahrenheit, the cause of death should be certified as heat stroke or hyperthermia. With a documented axillary temperature of 105.6 degrees

Fahrenheit, this meets the suggested criteria. Moreover, the core body temperature was certainly more elevated than that noted from an axillary site. Additional convergent autopsy findings support the diagnosis of hyperthermia. The patient did have a documented history of hypothyroidism, and upon histopathologic examination exhibited diagnostic features of Hashimoto thyroiditis. Moreover, whereas there was no significant coronary artery disease or evidence of frank myocardial infarction, histopathologic examination of the heart does reveal numerous widely distributed individual myocytes in the left ventricle and interventricular septum with contraction bands and early coagulative necrosis. The lungs were both notably heavy (right 710 g, left 830 g) and upon microscopic evaluation revealed widely distributed foci of pulmonary edema as well as similar foci of intra-alveolar hemorrhage (left > right). The brain also exhibited cerebral edema, yet no significant focal lesions.

It has been proposed that the physiologic adaptations "to hypothyroidism may hinder appropriate response during heat stress" (Siegler, 1998). The author reported the autopsy findings of a 31-year-old female with no known history of

Patient Name: Meyers, Thomas

Patient Account: 20005972-517
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 Patient Name: Meyers, Thomas
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00160

CLINICOPATHOLOGIC CORRELATION:

thyroid disease. The autopsy findings for the reported patient were significant for the post-mortem diagnosis of Hashimoto thyroiditis. Additionally, the remainder of the reported autopsy results were quite similar to the current patient as well as for many general instances of heat stroke or hyperthermia, with pulmonary edema and diffuse hemorrhage and presence of

contraction band necrosis within the myocardium. Finally, the medication list for the decedent included, risperidone, pravastatin, synthroid and vasotec. In the setting of extreme environmental heat, dehydration is always an underlying risk factor for heat-related illness. Dehydration may also increase the effective levels of certain medications through an associated reduction in renal clearance. In particular, risperidone and other psychiatric medications may disturb the capacity for brain regulation of body temperature homeostasis. As such, these medications may indirectly contribute to a state of hyperthermia due to temperature dysregulation. The contributory effects, if any, of hyperthyroidism and/or risperidone therapy with regard to the presentation of hyperthermia for the decedent may not be established.

In summary, with the exclusion of all other considerations for mortality, the cause of death for this 46-year-old male is hyperthermia. The manner of death is accident.

REFERENCES:

Donoghue, ER, Graham, MA, Jentzen, JM, Lifschultz, BD, Luke, JL, Mirchandiani, HG; Criteria for the Diagnosis of Heat-Related Deaths: National Association of Medical Examiners: Position Paper. The American Journal of Forensic Medicine and Pathology, Vol 18(1), March 1997, 11-14.

Siegler, RW: Fatal Heatstroke in a Young Woman with Previously Undiagnosed Hashimoto's Thyroiditis. Journal of Forensic Sciences Vol 43(6), 1998, 1237-1240.

JTK/da
 09/19/11

BILL A. RAMFY, D.O., PhD

(Electronic Signature)

03/13/12

Patient Name: Meyers, Thomas
 Patient Location: AUTOPSY
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END OF REPORT

Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/09/11 1340

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Pathology Report

1578039

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

AUTOPSY INFORMATION:

Occupation: INMATE

Birthplace: UNKNOWN

Residence: TEXAS

Date/Time of Death: 8/8/2011 08:15

Date/Time of Autopsy: 8/10/2011

Pathologist/Resident: CAMPBELL/DIVATIA

Service: TDC CONTRACT

Restriction: NONE

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

FINAL AUTOPSY DIAGNOSIS

- I. Body as a whole: Clinical history of hypertension, hyperlipidemia, diabetes mellitus and hyperthermia (terminal body temperature greater than 106 degrees Fahrenheit)

C1-3

- A. Organs in situ: Severe autolytic changes

A4

- B. Pulmonary system:

1. Lungs, bilateral: Congestion and edema (weights: right, 730 gm and left, 620 gm)

A4

- C. Cardiovascular system:

1. Pulmonary arteries: No thromboemboli identified
2. Coronary arteries: Moderate atherosclerosis with maximal stenosis of 40% (right coronary artery)
a. Heart: No evidence of myocardial infarct

A4

A4

A4

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.

IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;

3-contributory COD; 4-concomitant, significant; 5-incidental ***

Patient Name: TOGONIDZE, ALEXANDER

Patient Location: AUTOPSY

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/09/11 1340

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

CLINICAL SUMMARY:

The deceased is a 44 year old Caucasian TDCJ inmate with a past medical history of diabetes mellitus, who was found unresponsive in his cell on 8-8-11 at approximately 07:50 am. Cardiopulmonary resuscitation was initiated. The vital signs recorded at this time were body temperature greater than 106 degrees Fahrenheit, pulse 162/min, respirations 40/min, and blood pressure 60/40 mmHg. An automatic external defibrillator was used which advised no shock and to continue resuscitation. Upon arrival, emergency medical services applied a heart monitor/defibrillator which showed asystole, and resuscitation was subsequently stopped. The patient was declared dead on 8-8-11 at 8:15 a.m. A complete autopsy was performed on 08-10-11 at 10:00 a.m.

Prescribed medications recorded in supplied Correctional Managed Care Urgent/Emergent Care records include the following:

Ecotrin (aspirin)

Tenformin (atenolol - beta blocker)

Benzac gel

Tegretol (carbamazepine)

Vasotec (enalapril - angiotensin converting enzyme inhibitor)

Pamelor (nortriptyline - tricyclic antidepressant)

Prilosec (omeprazole)

Pravachol (pravastatin)

Glucophage (metformin).

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06/27/12

Patient Name: TOGONIDZE, ALEXANDER

Patient Location: AUTOPSY

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by left wrist band as "Alexander Togonidze", is a well developed, well nourished, Caucasian male, measuring 167 cm in length, and weighing approximately 188 lbs according to recent medical records. The general appearance is consistent with the reported age of 44 years. No personal belongings are accompanying the body. Rigor mortis is present in the arms and legs and there is fixed lividity on the dorsal surface. The head is normocephalic with short scalp hair (1.5 cm).

The pupils are equal and measure 0.3 cm in diameter. The corneas are cloudy, the conjunctivae and sclerae are mildly congested. The nares are patent without exudate. Dentition is adequate. Buccal membranes are pale without lesions. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is that of a normal male. The chest diameters are normally proportioned. The abdomen is slightly protuberant. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable.

The back is normal. The arms and legs are unremarkable. The genitalia are those of a normal male for the age.

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 2.5 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. The left and right pleural cavities contain 10 and 15 ml of clear fluid respectively.

The pericardial sac contains minimal clear fluid.

The 3rd and 4th right ribs and 3rd to 5th left ribs are fractured following cardiopulmonary resuscitation.

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries. The height of the left diaphragm is at the 9th intercostal space in the mid axillary line.

The abdominal cavity contains minimal clear fluid (15-20 ml). There are no peritoneal adhesions.

CARDIOVASCULAR SYSTEM: Heart: The heart weighs 300 gm (normal male 270-360) and is normal in shape. The pericardium is unremarkable. The heart is examined by transverse serial slicing; opening following the flow of blood. The myocardium is homogeneous red-brown without scars, infiltrates or lesions. The endocardium is smooth and transparent. The left ventricular wall is 1.4 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

GROSS DESCRIPTION:

and free wall, and the right ventricle is 0.4 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps are white, delicate and membranous with the exception of the aortic valve which has demonstrated cusps.

Valve circumferences measured on the fresh heart are: tricuspid valve 12.8 cm (normal 12-13 cm), pulmonic valve 8.7 cm (normal 8.5-9.0 cm), mitral valve 11.6 cm (normal 10.5-11.0 cm), and aortic valve 8.1 cm (normal 7.7-8.0 cm). The foramen ovale is closed.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left coronary arteries. The coronary arteries reveal moderate atherosclerotic plaques with up to 40% stenosis of the right coronary artery located 10.5 cm from the origin. There is no evidence of hemorrhage, rupture/thrombosis of the plaques. The aorta exhibits atherosclerotic plaques without ulceration or calcification (10 % of this area involved by plaques) in the thoracic and abdominal portions. The celiac, superior and inferior mesenteric, renal and iliac arteries are normal. The superior and inferior vena cavae and their branches are normal. The portal vein is normal.

RESPIRATORY SYSTEM: Larynx and trachea: The laryngeal mucosa and vocal cords are normal. The tracheal mucosa is normal.

Lungs: The right lung weighs 730 gm (normal male 435), and the left 620 gm (normal male 385). The pleural surfaces are congested with anthracotic areas. Lividity is dorsal. The left lung is inflated with formalin before sectioning and the right lung is examined unfixed. The bronchial and vascular trees are normal. The hilar nodes are normal. The lung parenchyma and both the lungs is congested and edematous.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is normal. The esophagus is firmly anchored to the diaphragm.

Tongue: The tongue is normal.

Stomach and duodenum: The stomach contains approximately 30 to 40 ml of dark colored fluid. The mucosa is predominantly autolyzed.

The duodenal mucosa is normal.

Pancreas: The pancreas and pancreatic duct are normal. The pancreatic duct is patent.

Biliary tract: The gallbladder mucosa, wall and serosa are normal. The

Patient Name: TOGONIDZE, ALEXANDER
 Patient Location: AUTOPSY
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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

GROSS DESCRIPTION:

gallbladder contains approximately 12 ml of dark green thin bile. No stones are identified. The wall measures up to 0.5 cm in thickness. The cystic duct, hepatic duct, and common duct are normal. The bile is freely expressed from the ampulla on compressing the gallbladder.

Liver: The liver weighs 1320 gm (normal male 1400-1900). The cut surface of the liver is unremarkable. No discrete lesions are identified.
Small Bowel: The mucosal and serosal surfaces of the small bowel are normal. The lumen contains fecal material. The wall is 0.4 cm thick.

Large bowel: The mucosal and serosal surfaces are normal. The lumen contains feces. No discrete lesions are identified.

The appendix is grossly normal.

Rectum and anus: The rectum and anus are normal.

Reticulo-Endothelial System: Spleen: The spleen weighs 200 gm (normal 125-195 gm). It is normal in shape, size, density and color.

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are unremarkable.

Spine: The spine is normal.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal. The trabeculae and cortical bone are normal density.

GENITO-URINARY SYSTEM: Kidneys: The kidneys are symmetric. The right and left kidneys weigh 170 and 160 gm respectively (normal male 125-170 gm). The capsules strip with ease to reveal dark brown unremarkable cortical surfaces. Serial slicing reveals well demarcated cortico-medullary junctions. The cortices are 0.4 cm thick; the medullas 1.4 cm thick. The pelves and calyces are normal. The renal pelvic mucosa is normal. Perihilar adipose tissue is normal.

Ureters: The ureters are normal throughout their length, measuring 0.2 cm in maximal external diameter. They are probe-patent into the bladder.

Bladder: The bladder is normal. The trigone is normal.

Prostate: The prostate is normal in size, color, consistency, and texture. The cut surface of the prostate is unremarkable. No discrete lesions are identified. The seminal vesicles are normal.

Patient Name: TOGONIDZE, ALEXANDER

Patient Location: AUTOPSY

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

GROSS DESCRIPTION:

Testes: The right and left testes weigh 26.7 and 25 gm respectively (normal 20-25 gm). The cut surface of both the testes is normal. No discrete lesions are identified.

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 26.5 gm (normal 10-22 gm), and is red-brown and bosselated. The cut surface is homogeneous and red-brown. No discrete lesions are identified.

Adrenal glands: The right and left adrenal glands weigh 6.2 and 5.7 gm respectively (normal 5-6 gm). The cut surface of both adrenal glands are normal. No discrete lesions are identified.

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater are normal. The brain weighs 1500 gm (normal male 1200-1400). The gyri and sulci display a normal pattern without significant edema or atrophy. The leptomeninges are normal. The circle of Willis, basilar and vertebral arteries show mild atherosclerosis. No indentation/herniation of the cingulate gyri, unci or molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

During the autopsy, blood and vitreous samples were retained for potential further testing. Samples of liver, kidney, heart, lung, and spleen, were frozen for potential further examination.

Blood from heart was submitted for comprehensive toxicologic analysis, and vitreous fluid was submitted for electrolyte analysis (testing laboratory: Aegis Crimes, Aegis Sciences Corporation, Nashville, TN).

GC /da
08/17/11

Patient Name: TOGONIDZE, ALEXANDER

Patient Location: AUTOPSY

Room/Bed: -

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Patient Account: 20005972-517
Med. Rec. No.: (0150)1578039
Patient Name: TOGONIDZE, ALEXANDER
Age: 45 YRS DOB: 12/02/66 Sex: M Race: C
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

MICROSCOPIC DESCRIPTION:

Thyroid (slide 1A, H&E): No pathologic change.

Adrenal gland (slide 2A, H&E): No pathologic change, examination limited by autolysis.

Testis (slide 2A, H&E): No pathologic change. Spermatogenesis present.

Spleen (slide 3A, H&E): Reduction of white pulp, examination limited by autolysis.

Pancreas (slide 4A, H&E): No evident pathologic change, examination limited by severe autolysis).

Kidneys (right: slide 5A; left: slide 6A; H&E): Mild interstitial fibrosis, examination limited by autolysis.

Prostate gland (slide 7A, H&E): No pathologic change.

Vertebral body (slide 8A, H&E, decalcified): Cellularity: 60%; normal marrow trilineage cellular composition; normal bony trabeculae.

Liver (slide 9A, H&E): Steatohepatitis, macro and micro, centrilobular, moderate.

Colon (slide 10A, H&E): No pathologic change.

Ileum (slide 11A, H&E): No pathologic change.

Lung, left apex (slide 12A, H&E): Healed granulomas with central necrosis, consistent with old (inactive) tuberculosis.

Lungs (left: slide 13A; right: slides 14A-16A; H&E): Congestion and edema; post-mortem intravascular bacterial growth present.

Heart (right: slide 17A; left: slides 18A-19A; H&E): No pathologic change, examination limited by severe autolysis.

Coronary artery, right (slide 20A, H&E): Atherosclerosis, 40% maximal stenosis.

Blood toxicologic and vitreous electrolyte analysis results and interpretations:

Positive toxicologic results:

Patient Name: TOGONIDZE, ALEXANDER
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Patient Account: 20005972-517
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Patient Name: TOGONIDZE, ALEXANDER
Age: 45 YRS DOB: 12/02/66 Sex: M Race: C
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

MICROSCOPIC DESCRIPTION:

Carbamazepine: 2.5 mcg/mL (reporting threshold 2 mcg/mL) - within therapeutic range

Nortriptyline: 751 ng/mL (reporting threshold 50 ng/mL) - somewhat above therapeutic range of 50-375 ng/mL and above level of 500 ng/mL at which toxicity has been reported. Effects of toxicity include cardiac arrhythmias. A reported lethal level is 13,000 ng/mL. Because the source of blood in this case was heart, artifactual post-mortem concentration is a possible factor in the elevated level of this drug.

All other analytes were negative.

Vitreous analysis results:

Urea Nitrogen: 38 mg/dL (reporting threshold 1 mg/dL) - mildly elevated (normal 8-20 mg/dL)

Sodium (Na): 123 mmol/L (reporting threshold 1 mmol/L) - decreased (normal 135-150 mmol/L)

Potassium (K): >9 mmol/L (reporting threshold 1 mmol/L) - normal (normal < 15 mmol/L)

Creatinine: 1.6 mg/dL (reporting threshold 0.1 mg/dL) - mildly increased (normal 0.6-1.3 mg/dL)

The above vitreous findings are somewhat consistent with hyponatremic dehydration, however chloride is normal (usually decreased in that condition).

References:

1. Winek CL, et al. Drug and chemical blood level data 2001. Forensic Sci. Int. 122:107-123, 2001.
2. Collins KA. Postmortem vitreous analyses. Medscape Reference, Drugs, Diseases and Procedures. [online:
<http://emedicine.medscape.com/article/1966150>], 2011.

GC /GC
06/27/12

Patient Name: TOGONIDZE, ALEXANDER
Patient Location: AUTOPSY
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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

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Pathology Report

NEUROPATHOLOGY CONSULTATION

Neuropath Office (409)772-2881

Autopsy No.: AU-11-00167

CLINICAL HISTORY:

The deceased is a 44 year old Caucasian TDCJ inmate with a past medical history of diabetes mellitus, who was found unresponsive in his cell on 8-8-11 at approximately 07:50 a.m. Cardiopulmonary resuscitation was initiated. The vital signs at this time were temperature greater than 106 degrees Fahrenheit, pulse 162/min, respirations 40/min, and blood pressure 60/40 mmHg. An automatic external defibrillator was used which advised no shock and to continue resuscitation. Emergency medical services arrived and an electrocardiogram was performed and analyzed. It showed asystole, and resuscitation was subsequently stopped. The patient was declared dead on 8-8-11 at 8:15 a.m.. An autopsy was performed on 08-10-11 at 10:00 a.m. The cause of death in this patient is hyperthermia and the manner is accidental.

PATHOLOGIST/RESIDENT: CAMPBELL/DIVATIA

GROSS DESCRIPTION:

Submitted for neuropathologic examination are brain (unfixed weight 1500 g), convexity and posterior fossa dura, spinal cord with spinal dura (length 29 cm, conus medullaris and filum terminale present), and pituitary gland.

The dura is grossly unremarkable. There is no evidence of significant jaundice staining. There is no evidence of acute hemorrhages, subdural membranes, or masses. There is no evidence of thrombosis of the superior sagittal sinus.

External examination reveals the brain to be intact and normally developed with transparent convexity leptomeninges. There is mild gyral flattening, but no evidence of arachnoid hemorrhage, exudate, focal softening, discoloration, atrophy, or herniation. The major cerebral arteries have no significant atherosclerosis. The circle of Willis has a normal symmetric pattern, and no aneurysms or other malformations are identified.

The hemispheres are sliced coronally, revealing normal anatomic development and normal cerebral ventricles. The cerebral white matter is expanded and soft and pink due to incomplete fixation, and the gray-white junction is focally indistinct. No focal gross lesions are identified in the hemispheres. The brainstem and cerebellum are separated through the cerebellar peduncles, and the cerebellum is sliced sagittally and the brainstem transversely. Both structures are normally developed, and have normal pigmentation of substantia nigra and locus ceruleus. There is no evidence of gross lesions.

The spinal dura is opened anteriorly, revealing no evidence of extradural, subdural or arachnoid hemorrhage. The spinal cord is sliced transversely at 0.5 to 1 cm intervals, revealing normal development and no evidence of parenchymal lesions.

The pituitary gland is intact and normally developed, without external

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AUTOPSY

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1578039

Patient Name: TOGONIDZE, ALEXANDER

Age: 45 YRS DOB: 12/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/09/11 1340

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Fax (409) 772-5683

Pathology Report

NEUROPATHOLOGY CONSULTATION

Neuropath Office (409)772-2881

Autopsy No.: AU-11-00167

GROSS DESCRIPTION:

hemorrhages or other lesions. The horizontal cut surface reveals a darkly colored anterior lobe, but no evidence of focal internal lesions.

Photographs made during gross brain examination: none.

DICTATED BY: GERALD A. CAMPBELL, M.D., PATHOLOGIST
06/27/12

SECTIONS TAKEN:

B1: Pituitary gland; B2: Right frontal, area 8; B3: Left basal ganglia; B4: Right cerebellum; B5: Right hippocampus.

FINAL DIAGNOSES:**A. Brain and cranial dura (weight 1500 g):**

1. Brain: Cerebral edema, moderate (negative for herniations)
2. Cerebral cortex and white matter: Autolytic changes
3. Frontal white matter: Cerebral small vessel disease, mild

B. Spinal cord and spinal dura (29 cm caudal segment): No abnormalities**C. Pituitary gland: No abnormalities****COMMENTS:**

Small vessel disease in this context refers to medial thickening and/or hyalinization of small parenchymal arteries and arterioles, and in some cases increased adventitial collagen of small veins and venules.

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

GERALD A. CAMPBELL, M.D., PATHOLOGIST
Division of Neuropathology .

Patient Name:

Patient Location:

Room/Bed:

Printed Date / Title: TOGONIDZE, ALEXANDER
AUTOPSY

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Gross: 06/27/12

Final: 06/27/12

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Patient Location:

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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00167

CLINICOPATHOLOGIC CORRELATION:

This 44-year-old Caucasian male decedent was found unresponsive in his cell in the Michael Unit in Palestine, Texas at approximately 7:50 am on August 8, 2011. His body temperature was recorded as greater than 106 degrees F., and he was tachycardic, tachypneic and hypotensive prior to cardiac arrest. The maximum environmental temperature for Palestine for the period 8/7 to 8/8/2011 was 104 degrees F. (weathersource.com). The decedent also had chronic diseases, including diabetes and hypertension, that may convey a general risk for hyperthermia, and his prescribed medications included atenolol, a beta blocker, which is known to interfere with cardiovascular response to increased environmental temperatures. Other cardiovascular and psychotropic drugs in this decedent's medication list are also possible factors increasing the risk for hyperthermia. There is no one specific autopsy finding that is universally recognized as diagnostic of death due to hyperthermia, however the results in this case, which included severe autolytic changes in most organs and absence of other anatomic causes of death, are consistent with this conclusion. Post-mortem toxicologic and vitreous electrolyte analyses were inconclusive.

In summary, based on the autopsy findings in combination with the clinical history and circumstances of death discussed above, we conclude that hyperthermia is the cause of death in this case. Chronic diseases, medications and environmental conditions are likely contributory factors. The manner of death is accidental.

GC /GC

06/27/12

GERALD A. CAMPBELL, M.D., PATHOLOGIST

GERALD A. CAMPBELL, M.D., PATHOLOGIST

06/27/12

(Electronic Signature)

Patient Name: TOGONIDZE, ALEXANDER

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END OF REPORT

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Pathology Report

1569761

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00165

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNKNOWN Residence: TEXAS
 Date/Time of Death: 8/4/2011 05:05 Date/Time of Autopsy: 8/9/2011
 Pathologist/Resident: CAMPBELL/XU Service: TDC CONTRACT
 Restriction: NONE

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

FINAL AUTOPSY DIAGNOSIS

- I. Body as a whole: History of exposure to high ambient temperature (the unit afternoon temperature, 97.5 deg.F), sudden unexpected death, and status post cardiopulmonary resuscitation. C1,2
- A. Heart: Hypertrophy, mild (weight, 400 gm) A3
- B. Coronary artery, LAD: Myocardial bridging (length, 2 cm; 2.5 cm from origin) A3
- C. Coronary artery, LAD: Mild atherosclerosis A3
- D. Blood, post-mortem heart: Toxicologic evidence of citalopram level consistent with toxicity (1100 ng/mL) A3
- E. Lungs: Congestion (weight, right, 800 gm, left, 680 gm) A3
- F. Lungs: Focal hemorrhage and edema A3
- G. Lung, bilateral: Emphysema A3
- H. Aorta, infra-renal: Mild atherosclerosis A3
- I. Ribs: No evidence of fractures A5
- II. Other findings:
- B. Liver: Chronic hepatitis with focal activity A4
- C. Pelvic wall, right lateral: Surgical prosthesis (plastic mesh), probably for repair of inguinal hernia A5

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

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P.002/013

(FAX)

10/04/2012 21:18

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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00165

CLINICAL SUMMARY:

The decedent was a 50-year-old Caucasian male inmate with a past medical history of Hepatitis C (positive for HCV antibody by serology), esophageal reflux (caustic lye ingestion at age of 6 years), adjustment disorder with mixed anxiety and depression, and right cheek subcutaneous mass. He smoked 2 ppd for 30 years and quit 5 years ago. He consumed alcohol 6.0 oz per week, 12 can(s) of beer per week, and quit 5 years ago. On 3/1/2010, he had an office visit at UTMB for a right cheek mass (2 cm) slowly growing for 1 year, associated with occasional pain. He reported a 10 lb weight loss for months due to reduced intake from acid reflux. On 3/26/2010, he underwent fine needle aspiration of the cheek mass which showed acellular keratin consistent with an epidermal cyst.

The patient's current medications included: Thorazine (chlorpromazine), Celexa (citalopram), and Omeprazole. 8/2/2011, the patient's EKG showed ventricular tachycardia and two hour cardiopulmonary resuscitation (CPR) was performed. On 8/4/2011 at 0315, the patient was found by a correctional officer lying unresponsive on a mattress which was on the cell floor. CPR was initiated, and the EKG showed ventricular tachycardia. (The date printed on the EKG strip was 8/2/2011. The OIG investigator verified the date/time printed from the device was not correct. It should be 8/4/2011). The patient's skin was warm and moist. No body temperature was taken (The temperature in the unit was 97.5 deg. F at noon on 8/4/2011). The patient's vital signs were unable to be obtained. He was intubated and attempted IV therapy was unsuccessful. AED was applied and EKG monitor showed asystole. He was pronounced dead at 0505 on 8/4/2011. A complete autopsy was performed on 8/9/2011.

YX /da
 09/02/11

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00165

GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by left toe ID tag as "Webb, Robert Allen", is a well nourished, well developed, white male, measuring 178 cm in length, and weighing approximately 179 lbs according to recent medical records. The general appearance is consistent with the reported age of 50 years. The body is unclad. Rigor mortis is present in the arms and legs and there is fixed lividity on the dorsal surface. The head is normocephalic with gray hair.

The irides are brown with unequal pupils right side measuring 0.4 cm, the left side 0.3 cm in diameter. The corneas are clear, the conjunctivae are slightly congested, and the sclerae are pale with no jaundice. The nares are patent with no exudate. There are no upper teeth and the right lower teeth are absent. Buccal membranes are normal with no lesions. No mass is identified on the face. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is normal male with sparse hair over the lower legs. The chest diameters are normally proportioned. The abdomen is flat. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable.

The back is unremarkable. The arms and legs are unremarkable. The genitalia are normal male for the age.

The following evidence of medical intervention is present: Two EKG leads on the right upper chest.

The following marks and scars are present: There are two abrasions on the middle of left face about 2.5 cm away from the nose. The abrasions measure 0.5 cm and 1.5 cm in diameter. One abrasion is found on the left lower chest, measuring 3.5 x 2.5 cm in size. There are two abrasions identified on the left elbow laterally, measuring 0.5 and 1.5 cm in diameter. There are multiple tattoos on the body: 1. A tattoo is seen on the left upper arm laterally. Another tattoo is found on the left forearm laterally. There are four healed and linear scars on this tattoo measuring 3 cm to 14 cm in length. 2. A tattoo is seen on the right upper chest. 3. There is a big tattoo is seen around the right upper arm. 4. There is a tattoo of two hearts on the right forearm dorsally and two linear well healed scars are found on this tattoo, measuring 7 and 12 cm in length. 5. A tattoo is found on the dorsal surface of right hand. There are multiple linear scars on the left index finger measuring 2 to 3 cm in length.

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 3 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. The lungs approach each other in front of the

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Pathology Report

FINAL AUTOPSY REPORT

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GROSS DESCRIPTION:

heart. The left pleural cavity contains no fluid, and the right 60 ml of bloody fluid.

The pericardial sac contains 10 ml of clear fluid. No ribs are fractured.

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries.

The abdominal cavity contains no fluid. There are no peritoneal adhesions.

CARDIOVASCULAR SYSTEM: Heart: The heart weighs 400 gm (normal male 270-360). The pericardium is smooth and glistening. There is moderate amount of epicardial fat. The left and right coronary ostia are identified in there normal locations. The heart is examined by transverse serial slicing of four sections from apex and then opening following the flow of blood. The remaining myocardium is homogeneous red-brown and no scars present. The endocardium is normal. The left ventricular wall is 1.5 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle and free wall, and the right ventricle is 0.3 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps are white, delicate and membranous.

Valve circumferences measured on the fresh heart are: tricuspid valve 12 cm (normal 12-13 cm), pulmonic valve 6 cm (normal 8.5-9.0 cm), mitral valve 11.5 cm (normal 10.5-11.0 cm), and aortic valve 7.7 cm (normal 7.7-8.0 cm). The foramen ovale is closed.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left anterior descending artery. The coronary arteries reveal mild atherosclerotic plaques with up to 10% occlusion of the LAD located 1 cm from the origin. There is no evidence of hemorrhage or rupture of the plaques. There is myocardial bridging measuring 2 cm in length, 2.5 cm from the origin. The infrarenal aortic segment exhibits 10% surface area involved with plaques. The aorta exhibits less than 5% surface area involved with plaques. The celiac, superior and inferior mesenteric, renal and iliac arteries are unremarkable with minimal atherosclerosis. The bilateral, iliac arteries exhibit about 10% surface area with plaques. The superior and inferior vena cavae and their branches are normal. The portal vein is normal.

RESPIRATORY SYSTEM: Larynx and trachea: The laryngeal mucosa is pink-red, and the vocal cords are normal with no lesions. The tracheal mucosa is normal.

Lungs: Palmar edema is visible as frothy fluid admixed in the bronchi. The right lung weighs 800 gm (normal male 435), and the left 680 gm (normal male

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Autopsy Office (409)772-2858

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GROSS DESCRIPTION:

385). The pleural surfaces with moderate amount of carbon deposition. The evidence of emphysema is seen on both of the lungs. Lividity is present on the dorsal surface. The right lung is inflated with formalin before sectioning. The bronchial and vascular trees are normal. The hilar nodes are normal. The lung parenchyma is dark red with no obvious consolidation.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is gray-red and no obvious erosions or strictures are identified. No esophageal varices are identified.

Tongue: The tongue has a finely granular surface with no coating.

Stomach and duodenum: The stomach contains about 30 ml of gray-green fluid. The mucosa is normal.

The duodenal mucosa is normal.

Pancreas: The pancreas has a normal conformation. It is gray-green, normally lobulated and firm in consistency. The pancreatic duct is patent.

Biliary tract: The gallbladder serosa is gray-green and glistening. The gallbladder contains about 30 ml of green bile and no stones are identified. The mucosa is gray and lividity. The wall measures up to 1 mm thick, and is unremarkable. The cystic duct, hepatic duct, and common duct are normal, and bile is expressed freely from the ampulla on compressing the gallbladder.

Liver: The liver weighs 1150 gm (normal male 1400-1900). The liver surface is smooth and homogeneous. Glisson's capsule is transparent and glistening. The liver is serially sliced to reveal a homogeneous lobular pattern. The cut surface is gray-pink without focal abnormality.

Small Bowel: The serosa is smooth and transparent with no adhesions. The bowel is normal throughout. The lumen contains gray-tan fluid. The mucosa is normal.

Large bowel: The serosa is smooth, transparent with no adhesions. The lumen contains well formed stool. The mucosa is normal.

The appendix is grossly normal.

Rectum and anus: The rectum and anus are normal.

Reticulo-Endothelial System: Spleen: The spleen weighs 290 gm (normal 125-195 gm). It is normal in shape, size, density and color. The cut surface is soft and red-purple.

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GROSS DESCRIPTION:

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are unremarkable.

Spine: The spine is normal.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal. The trabeculae and cortical bone are normal density.

GENITO-URINARY SYSTEM: Kidneys: The kidneys are symmetric. The right kidney weighs 130 gm and the left 140 gm (normal male 125-170 gm). The capsules strip with ease to reveal tan-pink cortical surfaces. The cut surface reveals demarcated cortico-medullary junctions. The pelves and calyces are normal. The renal pelvic mucosa is normal.

Ureters: The ureters are normal throughout their length, measuring 0.4 cm in maximal external diameter. They are probe-patent into the bladder.

Bladder: The bladder is dilated with no hemorrhage. The trigone is normal.

Prostate: The prostate is normal in size, color, consistency, and texture. Serial slicing reveals normal granular surfaces without distinct architecture. The seminal vesicles are normal.

Testes: The right testis weighs 26.1 gm, and the left 22.7 gm (normal 20-25 gm). The tunicae albugineae are tan-white, smooth and glistening. The cut surfaces are soft and tan-yellow, with no lesions.

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 15.6 gm (normal 10-22 gm), and is red-brown, bosselated and glistening. The cut surface is homogeneous, translucent, red-brown. No lesions are identified.

Parathyroids: Several golden-brown, soft fragments of tissue are collected as possible parathyroids.

Adrenal glands: The right adrenal gland weighs 7.1 gm and the left 8.5 gm (normal 5-6 gm). The adrenal glands have a normal conformation and position. Serial slicing in the transverse plane reveals 1 mm thick firm golden yellow cortices, with gray soft medullae with no lesions.

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater are normal. The brain weighs 1340 gm (normal male 1200-1400). The gyri and sulci display a normal pattern without edema or atrophy. The leptomeninges are unremarkable. The circle of Willis, basilar and vertebral arteries show no atherosclerosis. No indentation/herniation of the cingulate gyri, uncus or

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Pathology Report

FINAL AUTOPSY REPORT

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Autopsy No.: AU-11-00165

GROSS DESCRIPTION:

molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

Blood was submitted for toxicology tests and a vitreous sample was submitted for electrolyte analysis and osmolarity test (results from the latter not yet available - will be reported as an addendum). Samples of liver, kidney, heart, lung, and spleen, were frozen for potential further examination.

Toxicology Results:

Blood drawn postmortem from heart was submitted for toxicologic analysis to Aegis Sciences Corporation, Nashville, TN, for the following tests:

41150 - Chlorpheniramine; 41168 - Citalopram (Celexa)

Results are as follows:

Drug Class	Result	Quantitation	Reporting Threshold
Chlorpheniramine	NONE DETECTED		1 ng/mL
Citalopram	POSITIVE	1100 ng/mL	1 ng/mL

YX /da
 08/11/11

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MICROSCOPIC DESCRIPTION:

Heart, right and left ventricle, Slides 15-19, (5 H&E):
In the posterior wall of left ventricle, there is focal subendocardial mild patchy interstitial fibrosis. A few wavy fibers are in the septum. There are no fibrosis scars or thrombi in the left and right ventricle.

Lung, left, Slides 10 and 11 (2 H&E):
The architecture is preserved and there is focal pleural fibrosis. The parenchyma demonstrates diffuse congestion and focal hemorrhage. There is edema in the left lower lobe. No thrombus is noted.

Lung, right, Slides 12-14 (3 H&E):
The architecture is preserved and demonstrates congestion. There is focal hemorrhage. Mild emphysema is noted in right upper and middle lobe. No thrombus is noted.

Kidney, bilateral, Slides 5 and 6, (2 H&E):
There is autolysis of the tissue which prevents detecting early acute tubular necrosis. There is multifocal interstitial fibrosis with minimal lymphocytes infiltration. There are a few complete sclerotic glomeruli.

Adrenal gland, Slides 1 and 2, (2 H&E):
There is severe autolysis but the architecture is preserved.

Liver, Slide 4, (1 H&E):
There is mild steatosis. Lymphocytes infiltration in the portal triads is suggestive of lymphocytic triaditis. There is focal lobular invasion of lymphocytes. Focal bridging fibrosis is suggestive of early stage of cirrhosis, which indicates chronic hepatitis with focal activity.

Spleen, Slide 21, (1 H&E):
There is severe congestion. The red pulp is expanded due to congestion and the white pulp is atrophic.

Pancreas, Slide 22, (1 H&E):
There is severe autolysis but normal architecture without pathologic change.

Thyroid, Slide 3, (1 H&E):
There is no pathologic change.

Parathyroid, Slide 23, (1 H&E):
One piece of parathyroid gland is identified and there is no pathologic change.

Testes, Slides 1 and 2, (2 H&E):
There is active spermatogenesis and it is appropriate for given age.

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Autopsy No.: AU-11-00165

MICROSCOPIC DESCRIPTION:

Prostate, Slide 9, (1 H&E):
No pathologic change is noted.

Urinary bladder, Slide 9, (1 H&E):
There is autolysis. No pathologic change is noted.

Tongue, Slide 20, (1 H&E):
No pathologic change is noted.

Esophagus, Slide 7, (1 H&E):
There is mucosal autolysis but otherwise no pathologic change.

Stomach, Slide 7, (1 H&E):
There is mucosal autolysis but otherwise no pathologic change.

Gallbladder, Slide 8, (1 H&E):
There is mucosal autolysis with no pathologic change.

Ileum, Slide 8, (1 H&E):
There is mucosal autolysis and submucosal lymphoid hyperplasia.

Sigmoid colon, Slide 8 (1 H&E):
There is mucosal autolysis with no pathologic change.

Bone marrow, Slide 25, (1 H&E):
Cellularity is 70%. Myeloid, erythroid, and thrombocytic lineages are identified. The trabecular bone is normal.

YX /da
09/02/11

Patient Name: **WEBB, ROBERT ALLEN**
Patient Location: **AUTOPSY**
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Patient Account: 20005972-517
 Med. Rec. No.: (0150)221390N
 Patient Name: **WEBB, ROBERT ALLEN**
 Age: 51 YRS DOB: 02/11/61 Sex: M Race: C
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/09/11 0858
 Copies to:

UTMB
University of Texas Medical Branch
 Galveston, Texas 77555-0643
 (409) 772-1238
 Fax (409) 772-5683
Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00165

CLINICOPATHOLOGIC CORRELATION:

The decedent was a 50-year-old Caucasian male inmate with a past medical history of Hepatitis C (positive for HCV antibody by serology), esophageal reflux (caustic lye ingestion at age of 6 years), adjustment disorder with mixed anxiety and depression, and right cheek subcutaneous mass. The patient's current medications included: Thorazine (chlorpromazine), Celexa (citalopram), and Omeprazole. On 8/2/2011, the patient's EKG showed ventricular tachycardia and two hour cardiopulmonary resuscitation (CPR) was performed. On 8/4/2011 at 0315, the patient was found unresponsive in his cell, and resuscitation attempts were unsuccessful. A complete autopsy was performed on 8/9/2011.

At autopsy, the major organs showed advanced decomposition grossly and severe autolysis microscopically. The aorta and the coronary arteries exhibited mild atherosclerosis. The left anterior descending branch exhibited myocardial bridging, measuring 2 cm in length, beginning at 2.5 cm from the origin. The heart demonstrated mild left ventricular hypertrophy. Both lungs were congested and had focal hemorrhage and edema. The right lung showed mild emphysema. The liver revealed chronic hepatitis with focal activity.

According to this patient's clinical history and autopsy findings, environmental hyperthermia related heat stroke is a consideration. Heat stroke (HS) is a serious and potentially life-threatening condition defined as a core body temperature greater than 40.6 C. Two forms of HS are recognized, classic heat stroke, usually occurring in very young or elderly persons, and exertional heat stroke, more common in physically active individuals. An elevated body temperature and neurologic dysfunction are necessary but not sufficient to diagnose HS. Associated clinical manifestations such as extreme fatigue; hot dry skin or heavy perspiration; nausea; vomiting; diarrhea; disorientation to person, place, or time; dizziness; uncoordinated movements; and reddened face are frequently observed. Potential complications related to severe HS are acute renal failure, disseminated intravascular coagulation, rhabdomyolysis, acute respiratory distress syndrome, acid-base disorders, and electrolyte disturbances. Long-term neurologic sequelae (varying degrees of irreversible brain injury) occur in approximately 20% of patients. The prognosis is optimal when HS is diagnosed early and management with cooling measures and fluid resuscitation and electrolyte replacement begins promptly. The prognosis is poorest when treatment is delayed more than 2 hours.

A heat wave is defined as three or more consecutive days with air temperatures greater than 32.2 C. Exposure to excessive heat may cause illness, as heat directly induces tissue injury with severity dependent upon the critical thermal maximum (ie, the level and duration of core heating). The critical thermal maximum in humans is a body temperature of 41.6 C to 42 C for between 45 minutes and 8 hours. At extreme body temperatures (eg, 49 -50 C), all cellular structures are destroyed and cellular necrosis occurs in less than 5 minutes.

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CLINICOPATHOLOGIC CORRELATION:

The precise incidence of HS is unknown for many reasons. First, in the United States, heat-related death is not a reportable condition in any state. Second, the definition of HS varies, resulting in under reporting of HS cases. Third, many heat-related illnesses and deaths are unrecognized as such and are not reported. Therefore, the reported incidence of HS in the United States varies from 17.6 to 26.5/100,000. Why some cases progress to HS and others do not is unclear, but it appears that genetic polymorphisms may determine susceptibility; the likely candidate genes include those that encode cytokines, coagulation proteins, and heat shock proteins. Mortality rates for HS range from 10% to 70%, depending on the severity and age of the patient. The greatest numbers of deaths occur when treatment is delayed for more than 2 hours.

This patient had several risk factors of HS: lack of air conditioning, chronic illness, and use of Thorazine (chlorpromazine). Studies have showed Thorazine may impair thermoregulation. The cardiovascular system is frequently compromised in HS. The patient had ventricular tachycardia before his death. Confirmation of dehydration was attempted via vitreous humor electrolyte analysis, but prolonged postmortem intervals and putrefaction complicated the assessment.

Another issue that must be addressed in this case is the abnormally high level of citalopram (Celexa) in the post mortem blood obtained from the heart (1100 ng/mL, see toxicology report). This level is in the range reported to be in the toxic and/or lethal in several studies. [3-5] Potential reasons for a toxic level of this drug include overdose, changes in metabolism due to disease, and hemoconcentration due to dehydration. Clinical manifestations of citalopram toxicity include prolonged QT interval in the cardiac cycle and torsades de pointes (TdP), which is a potentially fatal type of ventricular arrhythmia. [6] The possibility of post-mortem redistribution of drugs, especially into heart blood must also be considered, however. This effect could artifactually considerably elevate the measured level over the actual level of the drug in circulating blood prior to death. A study of this effect reported only one case with measured citalopram levels, and in that case the ratio of the drug levels between blood drawn from femoral vein and heart was nearly unity (i.e. minimal redistribution effect). [7] Femoral blood could not be obtained in this case.

Based on the history of exposure to high ambient temperature and advanced organ autolysis, environmental-induced hyperthermia is likely a major factor contributing to death in this case. However, the measured toxic level of citalopram cannot be ruled out as a significant (and possibly major) factor. In either case, the manner of death must be considered accidental, as no evidence of suicidal intent has been presented.

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Date / Time Admitted: 08/09/11 0858
Copies to:

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Galveston, Texas 77555-054
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Pathology Report

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Autopsy No.: AU-11-00165

CLINICOPATHOLOGIC CORRELATION:

References:

1. Yeo, T. Heat Stroke, A Comprehensive Review, AACN Clinical Issues, 2004; 15 (2): 280-293
2. Prevention and treatment of heat injury. Med Lett Drugs Ther. 2003; 45:58-60.
3. Jonasson, B., Saldeen, T. Citalopram in fatal poisoning cases. Forensic Sci Int. 2002; 126:1-6.
4. Segura, L.J., Bravo, B. Postmortem citalopram concentrations: alone or along with other compounds. J Forensic Sci. 2004; 49:814-819.
5. Winek, C.L., et al. Drug and chemical blood-level data 2001. Forensic Sci Int. 2001; 122:107-123.
6. Chan, A., et al. Drug-induced QT prolongation and torsades de pointes: evaluation of a QT nomogram. QJ Med. 2007; 100:609-615.
7. Rodda, K.E., Drummer, O.H. The redistribution of selected psychiatric drugs in post-mortem cases. Forensic Sci Int. 2006; 164:235-239.

YX /da
09/02/11

GERALD A. CAMPBELL, M.D., PATHOLOGIST

(Electronic Signature)

02/17/12

Patient Name: **WEBB, ROBERT ALLEN**
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END OF REPORT

02/12 21:20 10/04/2012